

IN THE CLAIMS:

1. (currently amended) A method of managing utilization of an integrated circuit (IC) processor, comprising:

monitoring processor utilization by an adjustable software video encoder program running on a first thread, the adjustable video software encoder program having at least two different performance levels associated with a video quality of individual frames data-processing ~~quality of said adjustable software program~~, wherein each performance level has a different associated IC processor utilization and said performance levels comprise video encoding levels of the video encoder affecting video quality where each encoding level corresponds corresponding to an encoder configuration; and

selecting a performance level corresponding to a video encoding level to achieve a highest possible video quality while maintaining ~~while maintaining IC processor utilization of said video encoder within a desired range having a minimum IC processor utilization and a maximum IC processor utilization to maintain an idle thread utilization~~ above a minimum threshold selected sufficient to permit another software program to load and execute.

2-6. (cancelled)

7. (currently amended) The method of claim 1, further comprising:

generating running estimates of processor utilization for previous instantiations of the adjustable software video encoder program to determine how much to adjust said performance levels measuring IC processor utilization for each of said performance levels to determine a relationship between performance level and IC processor utilization.

8-12. (cancelled)

13. (original) The method of claim 1, further comprising:

in a startup mode of operation, selecting a minimum performance level as a starting performance level.

14. (previously presented) The method of claim 1, further comprising:

in a startup mode of operation, selecting a startup performance level of said adjustable software program to have a startup performance level with a processor utilization below a maximum IC processor utilization by a margin selected to accommodate differences in processor performance of at least two different types of IC processors.

15. (currently amended) A method of managing processor utilization in a video system, comprising:

providing a software video encoder having a plurality of encoding levels, each encoding level having a different associated processor utilization, where each encoding level corresponds to an encoder configuration affecting a video quality of individual frames;

monitoring processor utilization of said software video encoder and of idle thread utilization; and

determining a greatest encoding level of said video encoder to maintain a minimum idle thread utilization above a minimum threshold selected to permit another software program to load and execute for a range of operation conditions with processor utilization of said software video encoder within a desired range of processor utilization;

wherein said software video encoder automatically adjusts its encoding level to achieve the best video quality while maintaining idle thread utilization ~~for other software programs over a range of operation to achieve a highest possible video quality while maintaining processor utilization of said video encoder within a desired range having a minimum processor utilization and a maximum processor utilization sufficient to maintain an idle thread utilization to permit said another software program to load and execute.~~

16. (original) The method of claim 15, wherein said minimum idle thread utilization is maintained until other of said software programs have a processor CPU utilization greater than a threshold utilization.

17-20. (cancelled)

21. (currently amended) A computer readable medium having computer code comprising instructions selected to:

monitor processor utilization by an adjustable software video encoder program running on a first thread, the adjustable video encoder program having at least two different performance levels associated with ~~data processing quality of said adjustable software program~~, wherein each performance level where each encoding level corresponds to an encoder configuration related to video quality; and

select a performance level to achieve a highest possible video quality of individual frames while maintaining ~~IC processor utilization of said video encoder within a desired range having a minimum IC processor utilization and a maximum IC processor utilization sufficient to maintain~~ an idle thread utilization above a minimum threshold selected to permit another software program to load and execute.

22. (currently amended) A computer readable medium having computer code comprising instructions selected to:

determine a greatest encoding level of a video encoder to maintain a minimum idle thread utilization to maintain an idle thread utilization above a minimum threshold selected to permit another program to load and execute ~~for a range of operation conditions with processor utilization of the video encoder within a desired range of processor utilization where each encoding level corresponds to an encoder configuration;~~

adjusting the encoding level to achieve the best video quality of individual frames while maintaining idle thread utilization ~~for other software programs over a range of operation to achieve a highest possible video quality while maintaining processor utilization of said video encoder within a desired range having a minimum processor utilization and a maximum processor utilization sufficient to maintain an idle thread utilization~~ to permit said another software program to load and execute.

23. (new). The method of claim 1, wherein said encoding levels affect at least one of a noise reduction process, a prediction algorithm, a level of accuracy, a level of detail, a level of sophistication used in data analysis, a number of iterations used, error handling processes, and a size of a motions search.

24. (new) The method of claim 1, wherein said encoding levels correspond to decisions to select combinations of at least two of noise pre-processing, inverse telecine detection, high quality motion search, bidirectional motion search, half-pel motion vectors, full frame motion estimation, field frame discrete cosine transformation, and full precision mean absolute difference calculations.

25. (new). The method of claim 1, wherein said encoding levels affect at least one of a noise filtering process and image resolution.

26. (new). The method of claim 15, wherein said encoding levels affect at least one of a noise reduction process, a prediction algorithm, a level of accuracy, a level of detail, a level of sophistication used in data analysis, a number of iterations used, error handling processes, and a size of a motions search.

27. (new) The method of claim 15, wherein said encoding levels correspond to decisions to select combinations of at least two of noise pre-processing, inverse telecine detection, high quality motion search, bidirectional motion search, half-pel motion vectors, full frame motion estimation, field frame discrete cosine transformation, and full precision mean absolute difference calculations.

28. (new). The method of claim 15, wherein said encoding levels affect at least one of a noise filtering process and image resolution.

29. (new). The computer readable medium of claim 21, wherein said encoding levels affect at least one of a noise reduction process, a prediction algorithm, a level of accuracy, a level of detail, a level of sophistication used in data analysis, a number of iterations used, error handling processes, and a size of a motions search.

30. (new) The computer readable medium of claim 21, wherein said encoding levels correspond to decisions to select combinations of at least two of noise pre-processing, inverse telecine detection, high quality motion search, bidirectional motion search, half-pel motion

vectors, full frame motion estimation, field frame discrete cosine transformation, and full precision mean absolute difference calculations.

31. (new). The computer readable medium of claim 21, wherein said encoding levels affect at least one of a noise filtering process and image resolution.

32. (new). The computer readable medium of claim 22, wherein said encoding levels affect at least one of a noise reduction process, a prediction algorithm, a level of accuracy, a level of detail, a level of sophistication used in data analysis, a number of iterations used, error handling processes, and a size of a motions search.

33. (new) The computer readable medium of claim 22, wherein said encoding levels correspond to decisions to select combinations of noise pre-processing, inverse telecine detection, high quality motion search, bidirectional motion search, half-pel motion vectors, full frame motion estimation, field frame discrete cosine transformation, and full precision mean absolute difference calculations.

34. (new). The computer readable medium of claim 22, wherein said encoding levels affect at least one of a noise filtering process and image resolution.